

Environmental Protection Agency

Pt. 63, Subpt. G, Table 31

Fitting type and construction details	Loss factors ^b			Typical number of fittings, N _T
	K _{Fa} (lb-mole/yr)	K _{Fb} (lb-mole/[mi/hr] ^m -yr)	m (dimensionless)	
Unbolted cover, ungasketed	2.3	5.9	^c 1.0	1.
Unbolted cover, gasketed	2.4	0.34	1.0	
Bolted cover, gasketed	0	0	0	
Gauge-hatch/sample well (8-inch diameter) .....	.....	.....	.....
Weighted mechanical actuation, gasketed.	0.95	0.14	^c 1.0	N _{F6} (Table 31).
Weighted mechanical actuation, ungasketed.	0.91	2.4	1.0	
Vacuum breaker (10-in-diameter well) .....	.....	.....	.....
Weighted mechanical actuation, gasketed.	1.2	0.17	^c 1.0	
Weighted mechanical actuation, ungasketed.	1.2	3.0	1.0	N _{F7} (Table 31). N _{F8} (Table 32').
Roof drain (3-in-diameter) .....	.....	.....	.....
Open	0	7.0	^e 1.4	
90 percent closed	0.51	0.81	1.0	
Roof leg (3-in-diameter)	N _{F8} (Table 32').
Adjustable, pontoon area	1.5	0.20	^c 1.0	
Adjustable, center area	0.25	0.067	^c 1.0	
Adjustable, double-deck roofs	0.25	0.067	1.0	
Fixed	0	0	0	N _{F8} (Table 32').
Roof leg (2½-in-diameter) .....	.....	.....	.....
Adjustable, pontoon area	1.7	0	0	
Adjustable, center area	0.41	0	0	
Adjustable, double-deck roofs	0.41	0	0	1 ^g .
Fixed	0	0	0	
Rim vent (6-in-diameter) .....	.....	.....	.....
Weighted mechanical actuation, gasketed.	0.71	0.10	^c 1.0	
Weighted mechanical actuation, ungasketed.	0.68	1.8	1.0	

^aThe roof fitting loss factors, K_{Fa}, K_{Fb}, and m, may only be used for wind speeds from 2 to 15 miles per hour.

^bUnit abbreviations are as follows: lb = pound; mi = miles; hr = hour; yr = year.

^cIf no specific information is available, this value can be assumed to represent the most common or typical roof fittings currently in use.

^dA slotted guide-pole/sample well is an optional fitting and is not typically used.

^eRoof drains that drain excess rainwater into the product are not used on pontoon floating roofs. They are, however, used on double-deck floating roofs and are typically left open.

^fThe most common roof leg diameter is 3 inches. The loss factors for 2½-inch diameter roof legs are provided for use if this smaller size roof is used on a particular floating roof.

^gRim vents are used only with mechanical-shoe primary seals.

TABLE 31 TO SUBPART G OF PART 63—TYPICAL NUMBER OF VACUUM BREAKERS, N_{F6} AND ROOF DRAINS, ^A N_{F7}

Tank diameter D (feet) ^b	No. of vacuum breakers, N _{F6}		No. of roof drains, N _{F7} double-deck roof ^c
	Pontoon roof	Double-deck roof	
50	1	1	1
100	1	1	1
150	2	2	2
200	3	2	3
250	4	3	5
300	5	3	7
350	6	4	^d
400	7	4	^d

^aThis table should not supersede information based on actual tank data.

^bIf the actual diameter is between the diameters listed, the closest diameter listed should be used. If the actual diameter is midway between the diameters listed, the next larger diameter should be used.

^cRoof drains that drain excess rainwater into the product are not used on pontoon floating roofs. They are, however, used on double-deck floating roofs, and are typically left open.

^dFor tanks more than 300 feet in diameter, actual tank data or the manufacturer's recommendations may be needed for the number of roof drains.